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THE AMERICAN REPRESENTATIVES OF LONICERA CAERULEA.

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DURING the summer of 1924, on the rocky limestone barrens of northwestern Newfoundland, Messrs. Bayard Long, Boyd Dunbar and I became much interested in an exceedingly pubescent *Lonicera* which, on account of the dense villous-subtomentose pubescence on both surfaces of its leaves, had a gray lustre, in strong contrast with the dull aspect of the common shrub which passes as *L. caerulea*, var. *villosa* (Michx.) T. & G. The leaves, although not strictly velutinous, were almost "velvety" to the touch; and, supposing we had a new member of the subsection *Coeruleae*, we made a special point of collecting it wherever found.

Upon studying the old descriptions, however, it becomes apparent that our shrub has at least twice received specific designations. In fact, it is unquestionably the shrub which Michaux had when he gave the name *Xylosteum villosum*¹; and we have been mistaken in identifying the much less pubescent shrub of the northern states and adjacent Canada as *Lonicera caerulea*, var. *villosa*. Michaux's brief account was as follows:

"VILLOSUM. X. ramis villosis: foliis oblongo-ovalibus, obtusis, utrinque subtomentoso-villosissimis: pedunculis brevibus; baccis coeruleis.

Hab. in praeruptis saxosis, per tractus montium, a sinu Hudsonis ad Canadam. ."

Michaux's descriptive phrase, "foliis . . . utrinque subtomentoso-villosissimis," is certainly more applicable to the shrub of northern Newfoundland than to the ordinary shrub of New England;

¹ Michx., Fl. Bor.-Am. i. 106 (1803).

the habitat, translated freely and in the light of Michaux's collections, as rocky barrens of the mountain region between Hudson Bay and the Saguenay, is one showing many identities in its flora with the barrens of Newfoundland (the unique *Betula Michauxii* Spach., for example), and my own memorandum regarding the Michaux material, made in 1903 but until now not clearly understood, is significant: "most *extremely* pubescent form from 'Lac des Cygnes, Mistassin et Riv. des Goelands'."

Michaux's specific name was soon transferred to *Lonicera* as *L. villosa* (Michx.) R. & S.¹; and the common shrub of New England which has been generally called *L. caerulea*, var. *villosa* was described as *Xylosteum solonis* Eaton² and transferred to *Lonicera* by Sprengel.³ Material of the latter shrub, being more common in herbaria than the extreme plant of Michaux, the name *L. villosa* was generally and wrongly applied to it; and when DeCandolle studied specimens of the shrub with leaves densely villous-subtomentose on both surfaces, collected by LaPylaie on the Newfoundland barrens, he took it to be a new species, *L. velutina*,⁴ described "foliis . . . utrinque ramulisque villosa-tomentosis . . . fructo globoso biumbilicato circa umbilicum ciliato caeterum glabro."

The ciliate "umbilicus," *i. e.*, the ciliate limb of the calyx, emphasized by DeCandolle, is characteristic of the northern plant which must certainly be identified with Michaux's *Xylosteum villosum*. This extreme is likewise characterized by a villous corolla, the more southern extremes having the corolla commonly glabrous. *L. villosa* (Michx.) R. & S., in its typical form, then, is distinguished by leaves densely villous-subtomentose on both surfaces, the young branchlets tomentose and densely pilose, the calyx-limb ciliate at least when young and the corolla villous. This extreme, most typical from northwestern Newfoundland to Lake Mistassini, extends locally southward to Maine and northern New Hampshire.

Southward *L. villosa* is chiefly represented by four well marked variations with somewhat different geographic limits: the shrub described as *L. Solonis* (Eaton) Sprengel, with new branchlets both puberulent and pilose-hirsute (the pilosity sparse as compared with that of typical *L. villosa*), the leaves pilose beneath and strigose to

¹ Roem. & Schultes, Syst. v. 256 (1819).

² Eaton, Man. 26 (1817), ed. 2, 498 (1818).

³ Sprengel, Syst. i. 759 (1825).

⁴ DC. Prodr. iv. 337 (1830).

glabrate above, the calyx-limb not ciliate, the corolla ordinarily glabrous, a variety ranging from southern Newfoundland to southeastern Manitoba, south to Connecticut, Michigan, Wisconsin and Minnesota; *L. caerulea*, var. *calvescens* Fernald & Wiegand,¹ with the young branchlets pilose-puberulent but not hirsute and the leaves finely pilose beneath or glabrate, ranging from eastern Labrador southward through Newfoundland and the Maritime Provinces and locally to Ontario and Connecticut, in New England chiefly in alpine and subalpine districts; the most southern variety, with the surfaces of the young branchlets glabrous (not puberulent) and the leaves sparingly pilose to glabrous, ranging from southeastern Maine to southern Ontario, and south to northeastern Pennsylvania; and a singular variety discovered by the late T. O. Fuller and several times collected in Norfolk County, Massachusetts, a shrub with glabrous branchlets and with the corolla-tubes slender and practically lacking the gibbosity at base which characterizes the other varieties. In the West, from the Yellowstone Park to the Pacific and south to the Yosemite region occurs a thin-leaved shrub with red berries and other characters which seem to set it off as a species. Ever since the union of the American shrubs with the Eurasian *L. caerulea* L. by Hooker² in 1834, they have generally passed as that species or, if distinguished at all, they have been treated indiscriminately as *L. caerulea*, var. *villosa* (Michx.) T. & G. In 1910 the first departure from this conception occurred when *L. caerulea*, var. *calvescens* was set off.

Lonicera caerulea of Eurasia is a shrub with widely divergent branches; winter buds spreading or divergent, often with accessory buds, corolla pilose, with the lobes distinctly shorter than the tube, and essentially uniform, the corolla thus being practically regular; filaments attached 2–3 mm. below the sinuses of the corolla; the very glaucous fruits with purple juice (formerly used as a dye) and usually disagreeable bitter taste; seeds brown, elliptic to obovate, 2–3.3 mm. long; leaves of the sprout-shoots frequently bearing large stipular appendages.

The European shrub is most beautifully illustrated in all details, in *Flora Danica*, Suppl. t. 131 and its habit and essentially regular corollas are well shown also in the *Botanical Magazine*, xlv. t. 1965, in Jacquin's *Florae Austriacae*, v. t. 17, and in Reichenbach's *Icones Florae Germanicae et Helveticae*, xvii. t. 1575.

¹ RHODORA, xii. 210 (1910).

² Hook., Fl. Bor.-Am. i. 283 (1834).

Lonicera villosa, the shrub of northeastern North America which has so long passed as *L. caerulea*, differs from the wide-ranging Eurasian species in many characters. Its branches are strongly ascending; winter buds appressed or ascending, usually without accessory buds; corolla (glabrous or pilose) with the lobes equaling or exceeding the tube, slightly bilabiate; filaments attached only slightly (up to 1 mm.) below the sinuses; the blue or blue-black fruits with or without a slight bloom, with pale watery juice and sweet and edible pulp; seeds whitish- or pale-brown, short-oblong or suborbicular, 1.2-2 mm. long; stipules unknown.

Lonicera "*caerulea*" is usually given an American range including the whole region from Labrador to Alaska and British Columbia, southward into the northern states. So far as representation in the Gray Herbarium and the herbarium of the Arnold Arboretum indicate, however, the eastern species, *L. villosa*, reaches its western limit in eastern Manitoba and Minnesota; while the western species occurs from Washington south to the Yosemite region and east only to western Wyoming. No material of the group has been seen from British Columbia and Alaska, though Henry¹ cites *L. "caerulea"* from South Kootenay Pass. In all published descriptions the western shrub is said to have blue or blue-black fruit; but, singularly enough, no specimens are at hand indicating that the authors of these statements have collected mature fruit. From immature fruit, of course, the color cannot be determined, but the four sheets at hand with "dead ripe" fruits at once show a peculiar reddish tone quite unlike that seen in the fruits of either *L. caerulea* or *L. villosa*, and Cusick definitely states on the label of his no. 2662, "A shrub 3-5 feet. Pale red fruit." This red-fruited shrub of western America has the branching, the ascending winter buds, the high insertion of the filaments and the seeds as in *L. villosa*, but its leaves are membranaceous and not rugose (those of *L. villosa* coriaceous and rugose), and in anthesis the calyces have elongate and strongly ciliate lobes (*L. villosa* with lobes practically undeveloped).

Although the great bulk of the Eurasian shrubs are clearly referable to *Lonicera caerulea*, the slight representation at hand from Japan shows that *L. venulosa* Maxim. has the branching, winter buds and deep-cleft corolla of the two American species; and drawings made by Mr. Alfred Rehder of dissected corollas of this species show

¹J. K. Henry, Fl. So. Brit. Columb. 279 (1915).

the filaments inserted practically at the sinuses. Similarly Mr. Rehder's drawings indicate that other Japanese shrubs belong with the American rather than the continental Eurasian shrub. Such Japanese material as I have been able to examine, however, is quite distinct in one or another character from any of the forms known in North America.

The variations of *Lonicera villosa* are indicated in the following key and synopsis.

- a. Leaves densely villous-subtomentose on both surfaces: branchlets tomentose or densely short-pilose beneath long pilosity: limb of calyx ciliate at least in anthesis: corolla villous or pilose. Var. *typica*.
- a. Leaves pilose-hirsute to glabrous beneath, strigose to glabrous above: branchlets with puberulent or glabrous surfaces, or rather sparsely pilose-hirsute: limb of calyx glabrous: corolla glabrous (rarely pilose) b.
- b. Base of corolla-tube strongly gibbous on one side c.
- c. Surfaces of young branchlets puberulent d.
- d. Young branchlets puberulent and more or less pilose-hirsute: leaves pilose beneath, strigose to glabrate above. Var. *Solonis*.
- d. Young branchlets merely puberulent: leaves finely pilose to glabrate beneath. Var. *calvescens*.
- c. Surfaces of young branchlets glabrous: leaves sparingly pilose to glabrous. Var. *tonsa*.
- b. Base of corolla-tube slender and almost regularly tapering, scarcely gibbous on either side: young branchlets glabrous. Var. *Fulleri*.

L. VILLOSA, var. *typica*. *Xylosteum villosum* Michx. Fl. Bor.-Am. i. 106 (1803). *L. villosa* Roem. & Schultes, Syst. Veg. v. 256, (1819).¹ *L. velutina* DC. Prodr. iv. 337 (1830). *L. caerulea*, var. *villosa* (Michx.) T. & G. Fl. N. Am. ii. 9 (1841).—Straits of Belle Isle to Lake Mistassini, south to Maine and northern New Hampshire. The following are referred here. LABRADOR: rocks, Forteau, July 30, 1910, *Fernald & Wiegand*, no. 4053. NEWFOUNDLAND: trailing on peaty and turfy slopes, limestone barrens, Sandy (or Poverty) Cove, Straits of Belle Isle, August 1, 1924, *Fernald, Long & Dunbar*, no. 27,104; barrens, Flower Cove, July 12, 1921, *Mary E. Priest*; prostrate on turfy and peaty knolls in limestone barrens, Flower Cove, August 1, 1924, *Fernald, Long & Dunbar*, no. 27,103; prostrate on peaty and turfy knolls or slopes on limestone barrens, Brig Bay, August 6, 1924, *Fernald, Long & Dunbar*, no. 27,105; wet runs and boggy spots in limestone barrens, near sea-level, Ingornachoix Bay, August 4, 1910, *Fernald & Wiegand*, no. 4055; prostrate in damp peaty hollows in gravelly limestone barrens, Sandy Cove, Ingornachoix Bay, August 9, 1924, *Fernald, Long & Dunbar*, no. 27,106; Torbay,

¹ The name *L. villosa* was published in Muhl. Cat. 23 (1813) but only by inference is it associable with Michaux's plant. Roemer & Schultes leave no doubt, since they copy Michaux's description.

August 21–26, 1901, *Howe & Lang*, no. 1406. QUEBEC: grassy shore, Romaine, Lagorgendière, September, 1915, *St. John*, no. 90,738; *in praeruptis saxosis*, "Lac des Cygnes, Mistassin et Riv. des Goelands," August and September, 1792,¹ *Michaux* (TYPES at Mus. Hist. Nat. Paris). MAINE: rocky pasture, Orono, July 2, 1890, *Fernald*; Town Hill, Mt. Desert Island, June 15, 1890, *Rand*; Monmouth, August, 1896, *E. D. Merrill*. NEW HAMPSHIRE: Tuckerman's Ravine, June 26, 1901, *Pease*, no. 1253; bog, Carroll, July 13, 1910, *Pease*, no. 12,713; Hanover, May 23, 1915, *Mrs. E. D. Haskins*.

Var. **Solonis** (Eaton), n. comb. *Xylosteum solonis* Eaton,² *Man.* 26 (1817), ed. 2: 498 (1818). *L. solonis* (Eaton) Spreng. *Syst. Veg.* i. 759 (1825). *L. caerulea*, in large part, of Am. auth., not *L. villosa* of early Am. authors, and *L. caerulea*, var. *villosa* of most recent Am. authors, not *Xylosteum villosum* Michx.—Southern Newfoundland to southeastern Manitoba, south to Massachusetts, northern Rhode Island, Connecticut, Michigan, Wisconsin and Minnesota. The following selected from many specimens, are typical. NEWFOUNDLAND: open bogs among the hills, Grand Falls, July, 1911, *Fernald & Wiegand*, nos. 6250, 6251; boggy ditch between Mt. Musgrave and Humber Mouth, July 15, 1910, *Fernald & Wiegand*, no. 4052. QUEBEC: arbor-vitae swamp, Goose Lake, New Richmond, July 16 and 17, 1905, *Williams, Collins & Fernald*; swamp, Dudswell, July 23, 1923, *Knowlton*. PRINCE EDWARD ISLAND: wet thicket, Selkirk, July 7, 1914, *Fernald & St. John*, no. 11,186. NOVA SCOTIA: mountains north of Barrasois River, Cape Breton, July 28, 1914, *Nichols*, no. 428; swampy woods and thickets, Springhill Junction, July 18, 1920, *Pease & Long*, no. 22,604; boggy thicket, Yarmouth, July 3, 1920, *Bissell & Long*, no. 22,603. MAINE: Caribou bog, Crystal, June 24, 1898, *Fernald*, no. 2643; sphagnous bog, Orson Island, Oldtown, July 27, 1916, *Fernald & Long*, no. 14,591; southwest wall of North Basin, Mt. Katahdin, July 14, 1900, *Fernald*; dry rocks, Pembroke, July 6, 1909, *Fernald*, no. 2149; sand-plain, Columbia, August 4, 1916, *Knowlton*; damp woods, Mackerel Cove, Swans Island, July 7, 1914, *Hill*, no. 1477; Fayette, 1894, *Kate Furbish*; Tacoma, Litchfield, May, 1897, *J. M. H. Morrell*; swamp, Leeds, July 23, 1915, *Knowlton*. NEW HAMPSHIRE: roadside, Cambridge, August 15, 1915, *Pease*, no. 16,534; bog, Success, August 27, 1907, *Pease*, no. 10,640; bog, Crawford, July 15, 1895, *Williams*; low open ground, Whitefield,

¹ "Le 22 Aoust sur la Riv. Mistassin, . . . *Lonicera camae-cerasus* fol. tomentos . . . Le 29 . . . Nous arrivames au Lac des Cygnes . . . Le 4 Septemb. . . . A 10^h 1-4 entré dans le Lac Mistassin . . . Le 5 fait environ 8 à 10 lieues et diné sur la rive des Goelands à 16 lieues de distance du Lac"—*Journ. André Michaux*, ed. Sargent. *Proc. Am. Phil. Soc.* xxvi. no. 129: 77–81 (1888).

² The name *Solonis* needs some explanation. In his 1st edition Eaton said: "Found on the White Mountains (N. H.) by Dr. D. Solon. C. H. Smith"; but in the 2d he spoke of it as "Found first by Dr. Solon Smith (1815) at the foot of Whitehills." Drs. A. S. Pease and F. Tuckerman call my attention to the fact that the three names of the discoverer of the plant are pure synonyms and are all reducible to DAVID SOLON CHASE HALL SMITH, M.D. (Yale, 1816).

July 3, 1896, *Deane*; Chocorua, 1896, *Mrs. E. L. Bolles*; granite gravel and peaty slopes, alpine region of Mt. Lafayette, Franconia, August 10 and 11, 1915, *Fernald*, no. 11,878; swamp, Londonderry, August 15, 1921, *Knowlton*; Winchester, May 12, 1877, *W. F. Flint*. VERMONT: Brunswick, August, 1890, *Eggleston*, no. 1260; Concord, May 29 and 30, 1903, *Eggleston*, no. 3307. MASSACHUSETTS: South Framingham, May 12, 1890, *E. L. Sturtevant*; swamp, Sharon, May 19, 1907, *Knowlton*; low, open ground, Norfolk, June 24, 1911, *Ware*; bog, Medfield, May 21, 1916, *Hunnewell*, no. 4087; Harvard Forest, Petersham, May 30, 1914, *J. Murdock, Jr.*; Savoy, May 31, 1901, *Hoffmann*; low woods, Pittsfield, May 30, 1919, *Churchill, Knowlton & Schneider*; Washington, July 15, 1909, *Hoffmann*. RHODE ISLAND: low, open ground, Cumberland, *Hunt et al.* CONNECTICUT: border of Great Cedar Swamp, Voluntown, June 17, 1899, *Graves*; swamp, Killingly, July 2, 1903, *Knowlton*; rocky pasture, Stafford, June 12, 1906, *Bissell*. ONTARIO: swampy places, Nipigon, June 24, 1884, *Macoun*. MICHIGAN: bog, Isle Royale, September 2, 1910, *Cooper*, no. 307. WISCONSIN: swamps, Milwaukee, *Lapham*. MANITOBA: Winnipeg Valley, *Bourgeau*.

Rehder, in his *Synopsis of the Genus Lonicera*, 73 (1903) cites in the synonymy of the aggregate *L. caerulea*, var. *villosa*, "*L. caerulea Canadensis* 'Lamarck'." This name was originally published as follows: "LONICERA CAERULEA *canadensis* Lam. (*Xylosteum Solonis* Eat.)"—Delamare, Renauld & Cardot, Ann. Soc. Bot. Lyon, xv. 85 (1887), reprinted as Flor. Miquelon, 21 (1888). Lamarck, however, had no properly published var. *canadensis*. Under *L. caerulea* he had besides the typical European shrub a second: " β , *Eadem foliis ovato-subcordatis, petiolis dilatis plerumque connato-perfoliatis*. N. *An xylosteum Canadense*. Duham. Arb. 2. p. 373." And in the fuller description of var. β Lamarck again emphasized the *connate* leaves: "La variété β , que l'on cultive au Jardin du Roi, & qu'on nous a dit originaire de Canada, a ses feuilles plus larges, ovales presque en coeur, glabres, . . . dilatés à leur insertion, souvent même connés & comme perfoliés."—Lam. Encycl. Meth. Bot. i. 731 (1783).

So far as *L. caerulea canadensis* "Lam." is concerned, even if we admit the publication of the name by inference, it can have nothing to do with *L. villosa*, the connate-perfoliate leaves clearly placing it in the subgenus *Periclymenum*! *Xylosteon canadense* Duhamel, cited by Lamarck, and after him by DeCandolle and others, was not published as a binomial, but was simply the first half of a polynomial: "XYLOSTEON *Canadense foliis latioribus*, XYLOSTEON de Canada

à feuilles larges"—Duham. *Traité des Arbres et Arbustes*, ii. 373 (1755); it has no nomenclatorial status.

As already stated the fruits of *L. villosa* are edible, usually as good as blueberries (*Vaccinium* § *Cyanococcus*). In sending a specimen of var. *Solonis* to Asa Gray, the late I. A. Lapham added to the label: "Is not this worth cultivating for its abundant fine flavored fruit? I will send you a root"; in the *Catalogue of the Flowering Plants and Ferns of Connecticut* we find: "The berries are edible, resembling the blueberry in flavor"; and in their account of Washington County, Maine, Fernald & Wiegand say: "During our stay at Pembroke we were introduced to several food-plants which were new to our experience. The first of these was the 'Waterberry,' *Lonicera caerulea* L., var. *villosa* (Michx.) T. & G., which we enjoyed in some abundance for three weeks before the ripening of the Blueberries, which Waterberries resemble both in appearance and taste"—RHODORA, xii. 109 (1910).

Var. **calvescens** (Fernald & Wiegand), n. comb. *L. caerulea*, var. *calvescens* Fernald & Wiegand, RHODORA, xii. 210 (1910), in great part, including type.—Eastern Labrador (lat. 56°) to Ontario and Connecticut, often in alpine and subalpine regions. Since the two varieties following have been segregated from var. *calvescens* as originally published, it is desirable to cite some characteristic specimens. LABRADOR: Makkovik, August, 1896, *A. Stecker*, no. 39; Indian Harbor, Hamilton Inlet, August 2, 1891, *Bowdoin College Exped.*; on the gneiss plain, Blanc Sablon, August 1, 1910, *Fernald & Wiegand*, no. 4054. NEWFOUNDLAND: limy bog-barrens, Mistaken Cove, Straits of Belle Isle, August 1, 1924, *Fernald, Long & Dunbar*, no. 27,102; Fogo Island, July 1, 1906, *Owen Bryant*; moor, Whitbourne, August 16, 1894, *Robinson & Schrenk*, no. 11; swale at margin of Goose Pond, July 9, 1910, *Fernald & Wiegand*, no. 4051 (TYPE); border of boggy meadow, near Frenchman's Cove, Bay of Islands, July 19, 1921, *Mackenzie & Griscom*, no. 10,448. QUEBEC: edge of woods, Iles Boisées de Cap Blanc, Washtawouka, Goynish, July 5, 1915, *St. John*, no. 90,739; Seven Islands, August 3, 1907, *C. B. Robinson*, no. 688 (distributed as *Vaccinium ovalifolium*); marais, Coin-du-Banc, Percé, Juillet 25, 1923, *Marie-Victorin et al.*, no. 17,843; subalpine meadows at 1200 m., Mt. Au Clair, Tabletop Mts., August 10, 1923, *Fernald & Smith*, no. 26,026; alpine bogs, tableland of Mt. Albert, July 21-23, 1906, *Fernald & Collins*, no. 726; alpine and subalpine meadows, at about 1075 m., southeast of Pease Basin, between Mts. Logan and Pembroke, July 13, 1923, *Fernald, Griscom & Mackenzie*, no. 26,025; Rivière-du-Loup, August, 1914, *Victorin*, no. 528. MAGDALEN ISLANDS: border of larch swamp, Grindstone, July 17, 1912, *Fernald, Bartram, Long & St. John*, no. 8074; wet

thicket, Amherst Island, August 25, 1914, *St. John*, no. 1997. NOVA SCOTIA: boggy margin of pond, mountains bordering St. Ann's Bay, Cape Breton, July 21, 1914, *Nichols*, no. 238; thickets, Shubenacadie Grand Lake, July 27, 1921, *Fernald, Bartram & Long*, no. 24,532. NEW BRUNSWICK: South Tobique Lakes, July 18, 1900, *Hay*, no. 39. MAINE: shelves at 4000–4500 ft., west wall of North Basin, Mt. Katahdin, July 13, 1900, *Fernald*; sphagnous bog, Moore's Harbor, Isle au Haut, July 27, 1914, *Hill*, no. 1685; South Poland, 1895, *Kate Furbish*. NEW HAMPSHIRE: Alpine Garden, Mt. Washington, July 3, 1900, *T. O. Fuller et al*; Oakes Gulf, Mt. Washington, *Faxon et al*; northwest slope of Mt. Washington, June 22, 1908, *Pease*, no. 11,183; above headwall of Tuckerman's Ravine, August 28, 1907, *Pease*, no. 10,729; foot of cone of Mt. Monroe, June 22, 1908, *Pease*, no. 11,214. MASSACHUSETTS: swamp, Sharon, June 23, 1911, *Blake*, no. 1550; cedar swamp, Walpole, June 28, 1908, *Ware*, no. 2290; Blackstone, May 21, 1916, *Knowlton, Bean & Schweinfurth*, no. 16,189; Pelham, May 16, 1915, *Floyd*. CONNECTICUT: meadow, Eastford, July 18, 1917, *Weatherby*, no. D1713. ONTARIO: bog, Silver Islet Beach, August 4, 1912, *C. S. Williamson*, no. 2070.

The Massachusetts and Connecticut material sometimes has a few long trichomes on the young tips, thus showing transition to var. *Solonis*.

Var. **tonsa**, n. var., a var. *calvescente* recedit ramis novellis glabris rare sparseque hirsutis nec puberulis.—*L. caerulea*, var. *calvescens* Fernald & Wiegand, l. c. (1910), in part.—Southeastern Maine to southern Ontario, and south to northeastern Pennsylvania. MAINE: O'Connell's Point, North Lubec, September 8, 1902, *Kate Furbish*; moist thickets, Herrick's Bay, Brooklin, August 6, 1918, *Hill*, no. 2973; alder swamp, Matinicus, June 21, 1919, *C. A. E. Long*; Greenvale, 1894, *Kate Furbish*. NEW HAMPSHIRE: wet shore, Second Lake, Pittsburg, July 3, 1907, *Pease*, no. 10,176; swale, Colebrook, July 19, 1917, *Fernald & Pease*, no. 16,563; wet meadow, Stratford Hollow, June 9, 1912, *Pease*, no. 13,470; bogs, Jefferson, June 18, 1908, *Pease*, no. 11,263; ditch, Randolph, June 18, 1908, *Pease*, no. 11,246; granitic gravel and peaty slopes, alpine and subalpine region of Mt. Lafayette, Franconia, July 17 and 18, 1915, *Fernald & Smiley*, no. 11,877; sphagnum bog, Jaffrey, August 29, 1898, *Robinson*, no. 598, May 28, 1899, *Rand & Robinson*, no. 867. VERMONT: Scorpioides bog, Willoughby, June 9, 1895, *Kennedy* (form with unusually developed bracts). MASSACHUSETTS: Dedham, May 14, 1886, *Dame*; sphagnous swamp, Walpole, June 7, 1896, *Williams*; sphagnous swamp, Sharon, June 17, 1896, *Williams*; Castilleia swamp, Franklin, June 17, 1897, *S. Harris*; damp roadside, Athol to Petersham, May 12, 1912, *Fernald, Hunnewell & Wiegand*; low ground, Cold Brook Springs, Oakham, May 12, 1912, *Fernald, Hunnewell & Wiegand* (TYPE in herb. N. E. Bot. Cl.); Breakneck Brook Valley, Southbridge, May 20, 1916,

Churchill & Woodward; swamp, Sturbridge, May 20, 1916, *Knowlton*. RHODE ISLAND: swampy meadow, North Smithfield, May 30, 1900, *Chamberlain & Collins*, no. 129. CONNECTICUT: hummocks in wet meadow, Tolland, May 4, 1913, *Weatherby*, no. 2906. ONTARIO: Mer Bleue, near Ottawa, June 1, 1905, *Macoun*, no. 66,467; Wingham, June 28, 1891, *J. A. Morton*. NEW YORK: marsh near Newcomb, Essex Co., at 1700 ft., June 8, 1921, *House*, no. 8014. PENNSYLVANIA: vicinity of Naomi Pines, Pocono Mts., Monroe Co., June 7-10, 1889, *Small*.

Var. **Fulleri**, n. var., a var. *calvescente* recedit ramis novellis glabris nec puberulis; foliis glabratis; corollae tubo gracili vix basi gibbo aut aequali; baccis elongatis.—MASSACHUSETTS: Rosemary Meadow, Needham, May 13 and June 19, 1887, *T. Otis Fuller* (TYPES in herb. N. E. Bot. Cl.), May 6, 1894, *Fuller*.

A remarkable shrub, in its glabrous branchlets and glabrate foliage quite like var. *tonsa*, which is the commonest variety in Norfolk County; but with corollas so unlike those of the other varieties of *L. villosa* that, considered alone, they would at once suggest that the Needham shrub is a distinct species. It is a great pleasure permanently to associate with it the name of its discoverer, Timothy Otis Fuller (1845-1916), for many years one of the keenest and most scholarly amateur naturalists of New England, whose herbarium, presented by Mrs. Fuller to the New England Botanical Club, is a storehouse of unusual and discriminating notes and of beautiful analytical drawings.

The shrub of the West, which has there passed as *L. villosa*, may be called

L. cauriana, n. sp., caule erecto 0.8-1.5 m. alto, ramulis valde adscendentibus glabris vel pruinosis vel puberulis plerumque sparse hirsutis; foliis membranaceis anguste obovatis vel oblongis 2-9 cm. longis 1-4 cm. latis margine et subtus ad nervos villosociliatis; pedunculis folio valde brevioribus; bracteis lineari-setaceis ovario duplo longioribus; calycis limbo juvenili plus minusve lobato ciliato; corollis flavescentibus pilosis basi gibbis ad mediam lobatis subbilabiatibus; baccis rubris; seminibus albido-brunneis orbicularibus vel ellipticis 1-1.7 mm. longis; gemmis axillaribus adpressis vel valde adscendentibus.

Erect shrub 0.8-1.5 m. high; branches strongly ascending, glabrous, pruinose or puberulent and commonly sparsely hirsute: leaves membranaceous, narrowly obovate or oblong, 2-9 cm. long, 1-4 cm. wide; the margins and nerves beneath villous-ciliate; peduncles much shorter than the leaves; bracts linear-setaceous, twice as long as the ovary; young limb of the calyx more or less lobed, ciliate; the lobes less obvious in age: corolla yellowish, pilose, gibbous at base, lobed to the

middle, somewhat bilabiate: berries red: seeds whitish-brown, orbicular or elliptic, 1–1.7 mm. long: axillary buds appressed or strongly ascending.—Wyoming to Washington and California. WYOMING: Yellowstone Park, 1873, *Parry*, no. 197; abundant in boggy ground on the creek bottom, Obsidian Creek, Yellowstone Park, July 24, 1899, *A. & E. Nelson*, no. 6096; Norris Geyser Basin, Yellowstone Park, September 7, 1904, *J. G. Jack*. IDAHO: Musselshell Creek, Bitter Root Mts., July 16, 1902, *C. V. Piper*, no. 4107; at edge of brook, alt. 6400 ft., Cape Horn, Custer Co., August 6, 1916, *Macbride & Payson*, no. 3649. NEVADA: Franktown, Washoe Co., alt. 5000 ft., June 28, 1909, *A. A. Heller*, no. 10,389. CALIFORNIA: Westfall's Meadows, Yosemite Valley, *Bolander*, no. 6338; by Tuolumne River, Tuolumne Meadows, alt. 8600 ft., July 19, 1907, *R. A. Ware*, no. 2625C; near Soda Springs on Tuolumne River, August 19, 1907, *Alice Eastwood*, no. 496; Lassen Peak, July, 1879, *Mrs. R. M. Austin*. OREGON: Upper Des Chutes River, *Newberry*; west end of Paulina Lake, alt. 2100 m., July 29, 1894, *Leiberg*, no. 577; dry gravelly soil of Squaw Creek, Crook Co., July 16, 1901, *Cusick*, no. 2662; bank of Big Springs Creek, along Fort Klamath-Bend road, July 19, 1920, *M. E. Peck*, no. 9574. WASHINGTON: low wet ground, Mt. Paddo (Adams), August 10, 1882, *Suksdorf*, no. 134; alpine meadows, Mt. Paddo (Adams), June 29 and August, 1885, *Suksdorf*, no. 559 (TYPE in Gray Herb.); Skamania Co., July 25, 1886, *Suksdorf*. Presumably also in British Columbia.

Differing from *L. villosa* in its membranous and scarcely rugose leaves, well-developed calyx-limb (in anthesis), and small red berries; from *L. caerulea* in its appressed or ascending winter buds, strongly ascending branches, more deeply cleft and more bilabiate corolla, red berries without bloom and small mostly orbicular pale seeds.

GRAY HERBARIUM.

THE VARIETIES OF *CORALLORRHIZA MACULATA*.

H. H. BARTLETT.

MR. H. MOUSLEY of Montreal, Quebec, has sent me water-color sketches of three *Corallorrhizas* with the request that I identify them. I can hardly do so without bringing up the question of whether or not *Corallorrhiza maculata* var. *intermedia* Farwell is really identical with var. *fusca* Bartlett. I confess that I overlooked Mr. Farwell's publication¹ of var. *intermedia* when I wrote the note² on

¹ O. A. Farwell, New species and varieties from Michigan. Ann. Rep. Mich. Acad. Sci. 19: 247–249. 1917.

² H. H. Bartlett, Color types of *Corallorrhiza maculata* Raf. RHODORA 24: 145–148. 1922.